

## GUARDING AGAINST DEFORMITY AFTER INFANTILE PARALYSIS

ISSUED BY THE STATE BOARD OF HEALTH OF MAINE.

Epidemics of infantile paralysis leave in their wake so many children pitifully crippled and deformed that there is need of putting into the hands of parents, whose children have suffered an attack of this disease in the paralytic form, some trustworthy information about what may be done to prevent deformity, and particularly how they may cooperate with the attending physician in this very necessary work.

As a help in guiding us in the choice of the proper treatment of a child after an attack of infantile paralysis, it is customary to divide the time covered by the disease and its after effects into three stages: the acute stage, the convalescent stage, and the chronic stage.

### Two Dangers

In the acute stage, which is reckoned to the complete disappearance of all tenderness, there are two dangers to be avoided. One is the beginning of treatment too early, treatment particularly in which the use of electricity or massage or rubbing or kneading or exercise of the child is begun while there is still tenderness of the affected parts, or before the inflammatory process in the spinal cord has subsided. The other danger is the neglect to do for the child what should be done at the proper time to guard against permanent deformity and to lessen the crippling effect of the disease.

### The First Danger

In this first stage while tenderness persists, rest in bed should be required in all cases. The seat of the disease is not in the paralyzed or weakened muscles, but it is in those parts of the spinal cord which are inflamed and often hemorrhagic and from which the nerves are given off to supply the muscles; and when at this stage treatment by massage or electricity or manipulation of the spinal column is begun prematurely a serious injury may be done.

That massage during convalescence is harmful so long as tenderness remains is shown by Dr. Lovett, of Boston, in a brief narration of the histories of two of his patients:

"In one, a boy of seven, the tenderness was slight at the end of ten weeks, and gentle massage of five minutes was prescribed with a view of hastening its disappearance. In a week this boy was so tender that he could not bear the weight of the bedclothes, and was put in plaster of Paris for a week, during which week the tenderness disappeared. A girl of fifteen in the fourth week of her disease was massaged twice daily in a general hospital, being given heavy massage by a person without especial training. Her suffering became so great that she was placed in a private hospital, where the tenderness persisted to a marked degree for two months more."

Children in the early period of convalescence may be injured not only by the too early resort to electricity, massage or other manual treatment of the spine or affected limbs, but recovery may be seriously delayed or limited by permitting the child to get around too soon, thereby putting too much stress upon the weakened muscles. Dr. H. B. Thomas of Chicago sounds this warning:

"If I were allowed only two words of caution or advice to physicians, and through them to parents of the many beautiful children stricken during the present epidemic of infantile paralysis they would be: Prevent fatigue. By this I mean fatigue not only from the active movements of the child, but from passive motions and also from massage or electricity."

Dr. Koplik of New York, another physician whose experience and standing should claim our confidence, is in accord with many others in saying:

"We must never lose sight of the fact that rest, as well as quiet and ventilation, should be the keynote of our treatment, because there is a very active process going on in the brain and spinal cord, and anything which tends to produce too much motion in the coverings or their parts not only aggravates the symptoms, such as pain, but may do irreparable mischief. We therefore should not be too anxious to allow the children to sit up or get out of bed."

## **The Second Danger**

While the first danger is serious enough to be emphasized strongly, the second danger, that of neglecting to do that which should be done to prevent permanent crippling and deformity is just as serious an error.

The limbs and the other parts of the body are developed as they should be and preserve their shapeliness as long as the action of opposing muscles—those which bend and those which



straighten the limbs or the trunk—are well balanced, but if one set of muscles is paralyzed or weakened, there is a tendency of the opposing muscles to drag the parts away from their normal positions or shapes. Not opposed in their action by the muscles which are paralyzed, the unparalyzed muscles may become permanently shortened and the affected muscles are strained and lengthened. Thus deformity may result, and serious deformity does very often come on before the parents or the attending physician becomes aware of it.

The greatest care should be taken to prevent deformities in the paralyzed parts and that care should begin early. When these precautions are not taken as early as they should be, it is pitiable to see the deformities which result—contractures of muscles and displacements of the foot and ankle, the hands, the knees, the hips, or the spinal column. Very much may sometimes be accomplished in preventing deformity by the mother when she persists in her effort under the general guidance of her physician; but she should understand from the first that it may be necessary for her to persist for a long while.

The feet should be kept at right angles to the legs to avoid the deformity of "dropped foot" and the turning in or out of the foot which often intensifies this calamity. The knees should be kept extended if that is possible without much pain. Lateral curvature of the spine is often well advanced before it is known to exist in those cases in which there is one-sided paralysis of the muscles of the back. These deformities sometimes develop early and their occurrence makes later treatment much more difficult and expensive.

### **Simple Devices**

The means of guarding against these deformities are many, but the mother, with some very simple things, can do much when instructed by her physician. A frame or cradle of some kind should be used to keep the weight of the bed clothes from the toes and foot and the mother or nurse should be careful not to tuck the bed clothes in tightly. A sand-bag or a small box of sand padded on the foot side and placed against the sole may suffice to keep the foot at a right angle with the leg. But often the physician may find it necessary to apply less simple and in many cases more effective measures.

### **Massage**

When the tenderness has passed and the stage of convalescence has arrived the time has come for the beginning of various methods of treatment. Massage or systematic rubbing

or kneading is an aid to the circulation and nutrition of the limbs or other paralyzed parts but it must not be begun until the complete disappearance of tenderness, and then at first only by gentle rubbing or stroking, particularly in the direction of the heart to improve the return circulation of the blood.

## **Exercise**

Patients in the period of convalescence should be carefully restrained from excessive exercise of the weakened muscles, for muscles that are partly paralyzed sometimes rapidly lose what power they have retained when exercised too soon or too much. Young children particularly, even while sitting in bed, may, by throwing too much strain on such muscles, cause the rapid onset of deformity of the limbs or of the spinal column.

## **Electricity**

There are decided differences of opinion among men who have had experience in the use of electricity in the treatment of infantile paralysis. Used too soon or in unsuitable forms it may do great harm. When used unintelligently and as the exclusive treatment the patient is not having his best chance for the greatest possible degree of improvement. It is certainly wise to heed the warning not to have the electric current applied by a quack or other uninstructed person.

## **Heat**

The circulation is usually impaired so that the limbs are cold. The mother or nurse should be on the watch for this condition, and remedy it by the application of artificial heat.

## **Muscle Training**

As partial paralysis of the affected muscles is more common than complete paralysis, much may be accomplished by training the child again to acquire control over the weakened muscles, and as Dr. Lovett has expressed it, by attempting to drive an impulse from the brain to the affected muscle by a new route. To be the most effective this work should be carried on by an expert, though something may be done at home under supervision.

In the chronic stage which usually begins about two years after the onset of the disease, much may be done by operative methods in removing deformity, and in improving the function of the affected parts.